

# SEQUENCE LISTING

<110> Nolan, Garry P.  
Hitoshi, Yasumichi

<120> TOSO

<130> A65635-1/DJB/RMS

<140> 09/135,238

<141> 1998-08-17

<150> 06/066,063

<151> 1997-11-17

<160> 31

<170> PatentIn Ver. 2.0

<210> 1

<211> 1910

<212> DNA

<213> Homo sapiens

<400> 1

```

aaaggagtaa gcagcgtgtc tccatccccc tctctagggg ctcttggtatg gaccttgcaac 60
tctagaaggg acaatggact tctggctttg gccactttac ttcctgccag tatcaggggc 120
cctgaggatc ctcccagaag taaaggtaga gggggagctg ggcggatcag ttaccatcaa 180
atgcccactt cctgaaatgc atgtgaggat atatctgtgc cgggagatgg ctggatctgg 240
aacatgtggt accgtggtat ccaccaccaa ctccatcaag gcagaataca agggccgagt 300
tactctgaag caatacccac gcaagaatct gtccctagtg gaggtaacac agctgacaga 360
aagtgcacgc ggagtctatg cctgcggagc gggcatgaac acagaccggg gaaagaccca 420
gaaagtcacc ctgaatgtcc acagtgaata cgagccatca tgggaagagc agccaatgcc 480
tgagactcca aaatggtttc atctgcccta tttgttccag atgcctgcat atgccagttc 540
ttccaaattc gtaaccagag ttaccacacc agctcaaagg ggcaagggtcc ctccagttca 600
ccactcctcc cccaccaccc aaatcaccca ccgccctcga gtgtccagag catcttcagt 660
agcaggtgac aagccccgaa ccttcctgcc atccactaca gcctcaaaaa tctcagctct 720
ggaggggctg ctcaagcccc agacgccag ctacaaccac cacaccaggc tgcacaggca 780
gagagcactg gactatggct cacagtctgg gagggaaggc caaggatttc acatcctgat 840
cccgaccatc ctgggccttt tctgctggc acttctgggg ctggtggtga aaagggccgt 900
tgaaaggagg aaagccctct ccaggcgggc ccgcgcactg gccgtgagga tgcgcgcct 960
ggagagctcc cagaggcccc gcgggtcgcc gcgaccgcgc tcccaaaaca acatctacag 1020
cgctgccccg cggcgcgctc tggagcggac gctgcaggca caggggaggc ccccgttccc 1080
ggccccggag cgccgttgcc ccccgccccg ctgcagggtg ctgaatctcc ctggctccat 1140
gccccatctc tgaagaccag ctgtgaatac gtgagcctct accaccagcc tgcgcgcatg 1200
atggaggaca gtgattcaga tgactacatc aatgttcctg cctgacaact ccccgatctat 1260
cccccaaccc caggctcgga ctgtggtgcc aaggagtctc atctatctgc tgatgtccaa 1320
tacctgcttc atgtgttctc agagccctca tcacttccca tgccccatct cgactcccat 1380

```

ccccatctat ctgtggccct gagcatggct ctgccccag gtcgtcttgc acaccttggc 1440  
 agccccctgt agttgacagg taagctgtag gcatgtagag caattgtccc aatgccactt 1500  
 gcttcctttc caagccgtcg aacagactgt gggatttgca gagtgtttct tccatgtctt 1560  
 tgaccacagg gtgttggttc tgccaggctc tagatcacat ggcatcaggc tggggcagag 1620  
 gcatagctat tgtctcgggc atccttccca gggttgggtc ttacacaaat agaaggctct 1680  
 tgctctgagt tatgtgacgt gcctcagccc catggactaa gcaggggtct ggtataaaca 1740  
 ctcttgaaa cgcctttgcc ctgatccaaa tgttagcact tgctagtga cgtctactta 1800  
 tctcaagttc tatgctaaag gcaatttata ttgatgtgat gataaaccaa acttattagc 1860  
 aagatatgca tatatatcca taaattctct ttactctgtc tccatcctt 1910

<210> 2

<211> 390

<212> PRT

<213> Homo sapiens

<400> 2

Met Asp Arg Trp Leu Trp Pro Leu Tyr Phe Leu Pro Val Ser Gly Ala  
 1 5 10 15

Leu Arg Ile Leu Pro Glu Val Lys Val Glu Gly Glu Leu Gly Gly Ser  
 20 25 30

Val Thr Ile Lys Cys Pro Leu Pro Glu Met His Val Arg Ile Tyr Leu  
 35 40 45

Cys Arg Glu Met Ala Gly Ser Gly Thr Cys Gly Thr Val Val Ser Thr  
 50 55 60

Thr Asn Phe Ile Lys Ala Glu Tyr Lys Gly Arg Val Thr Leu Lys Gln  
 65 70 75 80

Tyr Pro Arg Lys Asn Leu Phe Leu Val Glu Val Thr Gln Leu Thr Glu  
 85 90 95

Ser Asp Ser Gly Val Tyr Ala Cys Gly Ala Gly Met Asn Thr Asp Arg  
 100 105 110

Gly Lys Thr Gln Lys Val Thr Leu Asn Val His Ser Glu Tyr Glu Pro  
 115 120 125

Ser Trp Glu Glu Gln Pro Met Pro Glu Thr Pro Lys Trp Phe His Leu  
 130 135 140

Pro Tyr Leu Phe Gln Met Pro Ala Tyr Ala Ser Ser Ser Lys Phe Val  
 145 150 155 160

Thr Arg Val Thr Thr Pro Ala Gln Arg Gly Lys Val Pro Pro Val His  
 165 170 175

His Ser Ser Pro Thr Thr Gln Ile Thr His Arg Pro Arg Val Ser Arg  
 180 185 190  
 Ala Ser Ser Val Ala Gly Asp Lys Pro Arg Thr Phe Leu Pro Ser Thr  
 195 200 205  
 Thr Ala Ser Lys Ile Ser Ala Leu Glu Gly Leu Leu Lys Pro Gln Thr  
 210 215 220  
 Pro Ser Tyr Asn His His Thr Arg Leu His Arg Gln Arg Ala Leu Asp  
 225 230 235 240  
 Tyr Gly Ser Gln Ser Gly Arg Glu Gly Gln Gly Phe His Ile Leu Ile  
 245 250 255  
 Pro Thr Ile Leu Gly Leu Phe Leu Leu Ala Leu Leu Gly Leu Val Val  
 260 265 270  
 Lys Arg Ala Val Glu Arg Arg Lys Ala Leu Ser Arg Arg Ala Arg Arg  
 275 280 285  
 Leu Ala Val Arg Met Arg Ala Leu Glu Ser Ser Gln Arg Pro Arg Gly  
 290 295 300  
 Ser Pro Arg Pro Arg Ser Gln Asn Asn Ile Tyr Ser Ala Cys Pro Arg  
 305 310 315 320  
 Arg Ala Arg Gly Ala Asp Ala Ala Gly Thr Gly Glu Ala Pro Val Pro  
 325 330 335  
 Gly Pro Gly Ala Pro Leu Pro Pro Ala Pro Leu Gln Val Ser Glu Ser  
 340 345 350  
 Pro Trp Leu His Ala Pro Ser Leu Lys Thr Ser Cys Glu Tyr Val Ser  
 355 360 365  
 Leu Tyr His Gln Pro Ala Ala Met Met Glu Asp Ser Asp Ser Asp Asp  
 370 375 380  
 Tyr Ile Asn Val Pro Ala  
 385 390

<210> 3  
 <211> 73  
 <212> PRT  
 <213> Homo sapiens

<400> 3

Val Thr Ile Lys Cys Pro Leu Pro Glu Met His Val Arg Ile Tyr Leu  
1 5 10 15

Cys Arg Glu Met Ala Gly Ser Gly Thr Cys Gly Thr Val Val Ser Thr  
20 25 30

Thr Asn Phe Ile Lys Ala Glu Trp Lys Gly Arg Val Thr Leu Lys Gln  
35 40 45

Tyr Pro Arg Lys Asn Leu Phe Leu Val Glu Val Thr Gln Leu Thr Glu  
50 55 60

Ser Asp Ser Gly Val Tyr Ala Cys Gly  
65 70

<210> 4

<211> 79

<212> PRT

<213> Homo sapiens

<400> 4

Leu Ser Leu Thr Cys Thr Val Ser Gly Ser Thr Phe Ser Asn Asp Tyr  
1 5 10 15

Tyr Thr Trp Val Arg Gln Pro Pro Gly Arg Gly Leu Glu Trp Ile Gly  
20 25 30

Tyr Val Phe Tyr His Gly Thr Ser Asp Asp Thr Thr Pro Leu Arg Ser  
35 40 45

Arg Val Thr Met Leu Val Asp Thr Ser Lys Asn Gln Phe Ser Leu Arg  
50 55 60

Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala  
65 70 75

<210> 5

<211> 73

<212> PRT

<213> Homo sapiens

<400> 5

Val Thr Leu Thr Cys Arg Ser Ser Thr Gly Ala Val Thr Thr Ser Asn  
1 5 10 15

Tyr Ala Asn Trp Val Gln Gln Lys Pro Asp His Leu Phe Thr Gly Ile  
20 25 30

Gly Gly Thr Asn Asn Arg Ala Pro Gly Val Pro Ala Arg Phe Ser Gly  
35 40 45

Ser Leu Ile Gly Asn Lys Ala Ala Leu Thr Ile Thr Gly Ala Gln Thr  
50 55 60

Glu Asp Glu Ala Ile Tyr Phe Cys Ala  
65 70

<210> 6  
<211> 72  
<212> PRT  
<213> Homo sapiens

<400> 6  
Thr Ser Leu Asn Cys Thr Phe Ser Asp Ser Ala Ser Gln Tyr Phe Trp  
1 5 10 15

Trp Tyr Arg Gln His Ser Gly Lys Ala Pro Lys Ala Leu Met Ser Ile  
20 25 30

Phe Ser Asn Gly Glu Lys Glu Glu Gly Arg Phe Thr Ile His Leu Asn  
35 40 45

Lys Ala Ser Leu His Phe Ser Leu His Ile Arg Asp Ser Gln Pro Ser  
50 55 60

Asp Ser Ala Leu Tyr Leu Cys Ala  
65 70

<210> 7  
<211> 75  
<212> PRT  
<213> Homo sapiens

<400> 7  
Val Thr Leu Arg Cys Lys Pro Ile Ser Gly His Asn Ser Leu Phe Trp  
1 5 10 15

Tyr Arg Gln Thr Met Met Arg Gly Leu Glu Leu Leu Ile Tyr Phe Asn  
20 25 30

Asn Asn Val Pro Ile Asp Asp Ser Gly Met Pro Glu Asp Arg Phe Ser  
 35 40 45

Ala Lys Met Pro Asn Ala Ser Phe Ser Thr Leu Lys Ile Gln Pro Ser  
 50 55 60

Glu Pro Arg Asp Ser Ala Val Tyr Phe Cys Ala  
 65 70 75

<210> 8  
 <211> 74  
 <212> PRT  
 <213> Homo sapiens

<400> 8  
 Val Glu Leu Thr Cys Thr Ala Ser Gln Lys Lys Ser Ile Gln Phe His  
 1 5 10 15

Trp Lys Asn Ser Asn Gln Ile Lys Ile Leu Gly Asn Gln Gly Ser Phe  
 20 25 30

Leu Thr Lys Gly Pro Ser Lys Leu Asn Asp Arg Ala Asp Ser Arg Arg  
 35 40 45

Ser Leu Trp Asp Gln Gly Asn Phe Pro Leu Ile Ile Lys Asn Leu Lys  
 50 55 60

Ile Glu Asp Ser Asp Thr Tyr Ile Cys Glu  
 65 70

<210> 9  
 <211> 80  
 <212> PRT  
 <213> Homo sapiens

<400> 9  
 Ala Lys Met Ser Cys Glu Ala Lys Thr Phe Pro Lys Gly Thr Thr Ile  
 1 5 10 15

Tyr Trp Leu Arg Glu Leu Gln Asp Ser Asn Lys Asn Lys His Phe Glu  
 20 25 30

Phe Leu Ala Ser Arg Thr Ser Thr Lys Gly Ile Lys Tyr Gly Glu Arg  
 35 40 45

Val Lys Lys Asn Met Thr Leu Ser Phe Asn Ser Thr Leu Pro Phe Leu

50

55

60

Lys Ile Met Asp Val Lys Pro Glu Asp Ser Gly Phe Tyr Phe Cys Ala  
 65 70 75 80

&lt;210&gt; 10

&lt;211&gt; 76

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 10

Val Thr Ile Thr Cys Pro Phe Thr Tyr Ala Thr Arg Gln Leu Lys Lys  
 1 5 10 15

Ser Phe Tyr Lys Val Glu Asp Gly Glu Leu Val Leu Ile Ile Asp Ser  
 20 25 30

Ser Ser Lys Glu Ala Lys Asp Pro Arg Tyr Lys Gly Arg Ile Thr Leu  
 35 40 45

Gln Ile Gln Ser Thr Thr Ala Lys Glu Phe Thr Val Thr Leu Lys His  
 50 55 60

Leu Gln Leu Asn Asp Ala Gly Gln Tyr Val Cys Gln  
 65 70 75

&lt;210&gt; 11

&lt;211&gt; 84

&lt;212&gt; PRT

&lt;213&gt; Unknown

&lt;220&gt;

&lt;221&gt; UNSURE

&lt;222&gt; (53)

<223> The x at position 53 can represent either  
 Phenylalanine, Valine or Isoleucine.

&lt;220&gt;

&lt;221&gt; UNSURE

&lt;222&gt; (79)

<223> The x at position 79 can represent either Alanine,  
 or Glycine.

<220>

<223> Description of Unknown Organism: Consensus

<400> 11

Val Thr Leu Thr Cys Xaa Xaa Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
1 5 10 15

Xaa Xaa Phe Xaa Trp Xaa Arg Gln Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
20 25 30

Leu Xaa Xaa Tyr Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
35 40 45

Tyr Xaa Xaa Arg Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
50 55 60

Xaa Phe Ser Leu Thr Ile Xaa Asn Xaa Xaa Xaa Xaa Asp Ser Xaa Xaa  
65 70 75 80

Tyr Xaa Cys Ala

<210> 12

<211> 43

<212> PRT

<213> Homo sapiens

<400> 12

Gln Arg Pro Arg Gly Ser Pro Arg Pro Arg Ser Gln Asn Asn Ile Tyr  
1 5 10 15

Ser Ala Cys Pro Arg Arg Ala Arg Gly Ala Asp Ala Ala Gly Thr Gly  
20 25 30

Glu Ala Pro Val Pro Gly Pro Gly Ala Pro Leu  
35 40

<210> 13

<211> 35

<212> PRT

<213> Homo sapiens

<400> 13

Arg Arg Pro Arg Gly Glu Pro Gly Pro Arg Ala Pro Arg Pro Thr Glu  
1 5 10 15



Gly Ala Thr Cys Ala Gly Pro Gly Glu Ser Trp Ser Pro Ser Pro Asn  
20 25 30

Ser Met Leu  
35

<210> 14  
<211> 36  
<212> PRT  
<213> Homo sapiens

<400> 14  
Met Pro Pro Arg Tyr Gly Ser Leu Arg Gln Ser Cys Pro Arg Ser Gly  
1 5 10 15

Arg Glu Gln Gly Gln Asp Gly Thr Ala Gly Ala Pro Gly Leu Leu Trp  
20 25 30

Met Gly Leu Val  
35

<210> 15  
<211> 19  
<212> PRT  
<213> Homo sapiens

<400> 15  
Glu Ser Pro Trp Leu His Ala Pro Ser Leu Lys Thr Ser Cys Glu Tyr  
1 5 10 15

Val Ser Leu

<210> 16  
<211> 19  
<212> PRT  
<213> Homo sapiens

<400> 16  
Asp Ala Pro Trp Gln Gln His Ala Arg Trp Tyr Asp Arg Cys Glu Tyr  
1 5 10 15

Val Leu Leu

<210> 17  
<211> 19  
<212> PRT  
<213> Homo sapiens

<400> 17  
Gln Gln Pro Leu Leu His Pro Pro Glu Pro Lys Ser Pro Gly Glu Tyr  
1 5 10 15

Val Asn Ile

<210> 18  
<211> 19  
<212> PRT  
<213> Homo sapiens

<400> 18  
Trp Glu Pro Trp Leu Pro Ala Glu Ala Leu Thr Arg Leu Arg Ile Gly  
1 5 10 15

Gly Phe Tyr

<210> 19  
<211> 19  
<212> PRT  
<213> Homo sapiens

<400> 19  
Gln Pro Ala Ala Met Met Glu Asp Ser Asp Ser Asp Asp Tyr Ile Asn  
1 5 10 15

Val Pro Ala

<210> 20  
<211> 19  
<212> PRT  
<213> Homo sapiens

<400> 20  
Thr Glu Ala Cys Val Val Arg Asp Ala Asp Asn Glu Pro His Ile Glu  
1 5 10 15

Arg Pro Ala

<210> 21  
<211> 19  
<212> PRT  
<213> Homo sapiens

<400> 21  
Gln Pro Ala Pro Arg Glu Glu Glu Thr Gly Thr Glu Glu Tyr Met Lys  
1 5 10 15

Met Asp Leu

<210> 22  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 22  
gctcacttac aggctctcta 20

<210> 23  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 23  
caggtggggg ctttcattcc 20

<210> 24  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 24  
 agaggcatag ctattgtctc gg 22

<210> 25  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 25  
 acatttgat cagggcaaag 20

<210> 26  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 26  
 aggggctctt ggatggac 18

<210> 27  
 <211> 17  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 27  
 ctggggttgg ggatagc 17

<210> 28  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic

<400> 28  
 gggagaagta aagaacaaag 20

<210> 29

<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 29  
cgtaggcaca atcacagcat 20

<210> 30  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 30  
agaattctct ctaggggctc ttggatg 27

<210> 31  
<211> 29  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic

<400> 31  
ataaagcttc tcagggcaca gatagatgg 29